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Does size matter? An analysis of derivative use by small South African firms listed on the JSE and AltX

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Abstract

This paper analyses derivative use by small South African firms listed on the JSE Main Board and the Alternative Exchange (AltX). Surveys of small firms are subject to poor response rates and the methodology employed in this study avoids this limitation by analysing the information required to be disclosed in annual reports in terms of IFRS 7. The results are compared to the results of studies of derivative use made by similarly sized companies internationally as well as the results in South Africa and internationally of derivative use by large companies.

The study involved the study of firms with market capitalisations of less than R1 billion rand and involved the analysis of 104 companies. The results found that only 17% of small South African companies made use of derivatives. This compares unfavourably to studies of small companies internationally where it was found that 43% of small

companies, outside the USA, reported the use of derivatives. Although the use of derivatives in the USA was low, this may reflect the large internal market within the USA as well as the pricing of international commodities and goods in US Dollars. This study found that 89% of derivative use related to hedging foreign currency risks and 16 of the 17 companies used OTC forwards to hedge foreign currency risks. Only one company used options to hedge foreign currency risks. The study found only one company that hedged interest rate risks and this company used interest rate swaps. Only two companies used equity options. Over 90% of large South African companies use derivatives to hedge exposure to foreign currency, interest rate and commodity risks. As derivatives form an important component of an effective risk management policy, and derivative use has been found to mostly add value, the inability of small firms to hedge, due to the limitations of capital markets or the lack of capacity may add to the already significant number of impediments facing small firms in South Africa.

JEL classification: G32

Key words: Derivatives, hedging, currency exposure, interest rate risk, forwards and swaps

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Introduction

Research into the growth in the use of derivatives by the corporate sector and the motives for the use of derivatives by this sector has thus far been centred mainly on companies in the USA, the UK, Europe and Australasia. There is a lack of published research studies on derivative use in emerging countries and even less in Africa. Studies of derivative use by the largest companies in South Africa have been undertaken by Correia, Holman and Jahreskog (2012) and Modack, Holman and Correia (2012).

The research undertaken in this study focuses on an analysis of the use of derivatives by the smallest companies listed on the main board of the JSE as well as those companies listed on the AltX. Similar studies have been conducted in the USA (Bodnar et al, 1995, 1996, 1998), New Zealand (Berkman et al, 1997;), the UK (Grant, et al, 1997; Mallin et al, 2001), Germany (Bodnar, G. M and Gebhardt, G 1999), Belgium (De Ceuster, et al, 2000), Sweden (Alkeback and Hagelin, 1999 and Alkeback et al, 2006), Hong Kong and Singapore (Sheedy, 2006), Slovenia and Croatia (Milos, 2007), the Netherlands (Bodnar, et al, 2003), Taiwan (She et al, 2000), Canada (Jalilvand, 1999), Brazil (Junior, 2007 & 2011), and a comparative study on Argentina, Brazil, Chile and Mexico (Schiozer and Saito, 2009)

Data gathering in most of these studies were based on survey questionnaires which were sent to a select group of companies and many of these questionnaires were based on research undertaken by the Wharton School under the leadership of Gordan M Bodnar in 1995, 1996 and 1998. Some of the studies have sourced information from local financial databases and annual financial statements either as an alternative approach or conjunction with the questionnaire approach (Sprcic, 2007; Jalivland, 1999; Pei-Gi and Hsuan-Chi, 2003; Junior, 2007 & 2011 and Schiozer and Saito, 2009).

In this study, data is gathered through a review of the 2008 and 2009 audited financial reports of the selected companies. This approach has its limitations. Whilst questionnaires enable one to gather information on the intent behind the use of derivatives, a review of annual reports does not always make such intent clear. A more significant limitation of the “financial report review” approach is the inability to illicit, from companies that do not use derivatives, a response for the reasons behind

this decision. Nevertheless, this study does offer a starting point for research with respect to the use of derivatives among smaller companies in South Africa which will hopefully complement research undertaken on larger companies, not only in South Africa but on the continent of Africa as well. Further, whilst a survey of the largest listed companies may result in a reasonable response rate, this is not true for small companies and many surveys of small companies will result in survey responses below 10%. Therefore, the study of the practices by small companies will be enhanced by a review of annual reports in terms of the disclosure requirements of IFRS although such investigation will require a detailed analysis of many company annual reports – in this case being 104 companies.

The main research questions that the study attempts to address include:

- To what extent do small listed companies in South Africa make use of derivatives?
- What types of derivatives are most commonly used?
- For risk management purposes, what types of risks are being managed? Do these risks include commodity price risk, interest rate risk and foreign exchange risks?
- What are the preferred (derivative) instruments used for the management of these risks?
- How does derivative use amongst small companies compare to derivative use by large listed companies?

The study presents a literature review of prior research undertaken of corporate derivative use which is followed by an outline of the recent developments in the accounting disclosure requirements pertaining to the use of derivatives. This is followed by an outline of the data and methodology employed in this study. The results of the study are then presented which consist of a descriptive analysis of the use of derivatives as outlined above as well as a comparable analysis of derivative use by large South African companies.

Literature Review

Since the introduction of derivatives exchanges in the early 1970s, starting with interest rate and exchange rate derivatives, there has been a significant growth in the market for derivatives as well as the growth and the evolution and refinement of derivative instruments such as swaps, futures, forwards and options. Managers now have a wide range of options to choose from to manage the corporation's exposure to financial risk (see Sprcic, 2007). Managers and corporations realise the benefit that financial risk management can have on reducing cash flow volatility, expected financial

distress and agency costs which ultimately enhances the value of the company (see Sprcic, 2007; Smithson and Simkins, 2005).

Research undertaken outside of the USA of derivative use is modelled on studies conducted by the Wharton School Surveys of 1994 (published in 1995), 1995 (published in 1996) and 1997 (published in 1998). These include the works by Berkman et al (1997), with a focus on derivative use by non-financial companies in New Zealand, Bodnar, G. M and Gebhardt, G (1999), with a focus on non-financial companies in Germany; Sheedy, (2006), with a focus on non-financial companies in Hong Kong and Singapore and Bodnar, et al, (2003), with a focus on non-financial companies in the Netherlands. These studies make a direct comparison between the patterns of derivatives use by non-financial companies in the countries under review and that of the USA.

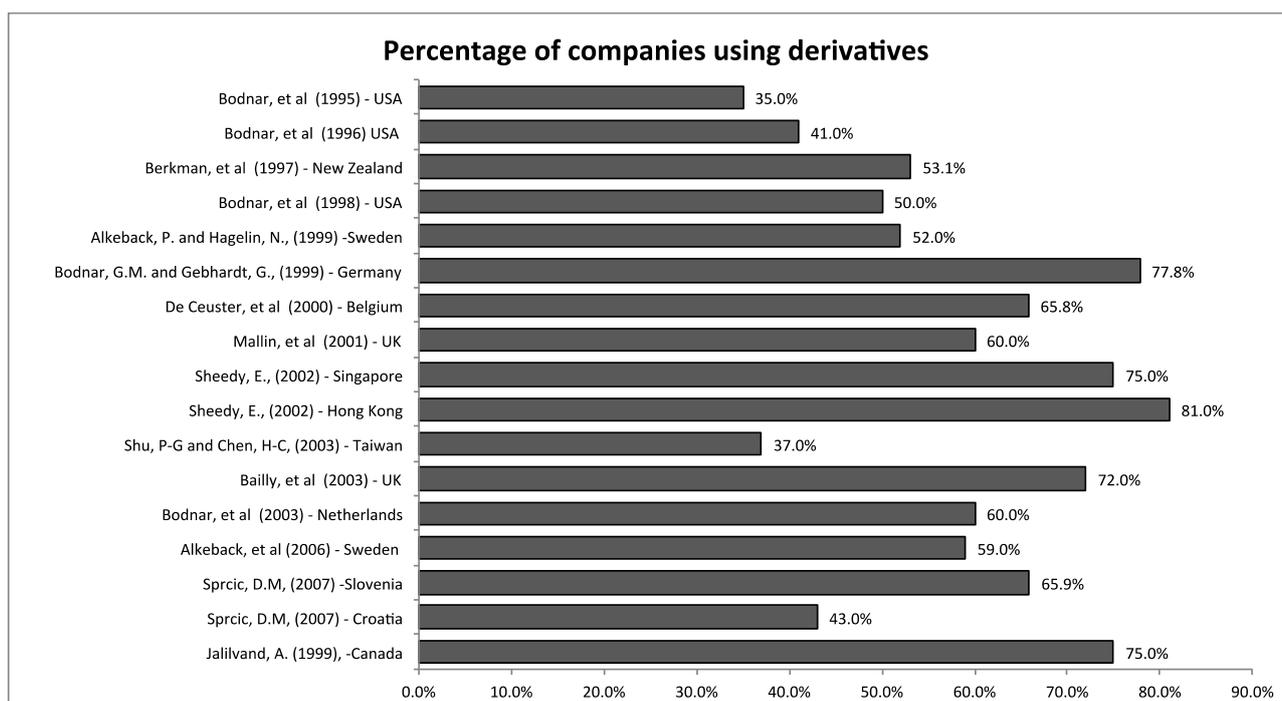
Generally the studies take the form of a descriptive analysis although some studies such as that of Jalilvand (1999), with a focus on non-financial companies in Canada, and Shu and Chen (2000), with a focus on non-financial companies in Taiwan, and Junior (2007 and 2011) with a focus on non-financial companies in Brazil and Schiozer and Saito (2009) with a focus on non-financial companies in Argentina, Brazil, Chile and Mexico take a more analytic approach to test statistical significance of selected variables on the decision to use derivatives. As is evident by a summary of some of the key findings of the studies to which this paper makes reference to, the different approaches may make it difficult to undertake a comparable analysis of results. The impact of differences in the timing of surveys should also be considered when interpreting the results of such comparisons

One of the earliest studies of the extent of derivative use by corporations can be traced to research undertaken by Bodnar, Hayt, Marston and Smithson (1995). This survey was directed at non-financial companies in the USA, the objective being to focus on the end user of the derivatives; financial institutions are often both end users and make a market in or write derivatives, hence their exclusion from the study. This is an approach that was adopted by all other studies included in this literature review. Most of the studies took the form of questionnaires which sought to ascertain not only the number of companies using derivatives, but also certain characteristics of these companies such as size of the company, the industry in which the company operates in and the capital structure of the company.

The initial survey by Bodnar, Hayt, Marston and Smithson, achieved a response rate of 26.5%. The 1998 survey by Bondar *et al* saw a response rate of 20.7%. Similar response rates were achieved in later studies in Belgium (21.9%) (De Ceuster et al, 2000) and Slovenia (22%) (see Sprcic, 2007). However, the response rates achieved by Bodnar et al are well below the rates achieved in studies in Sweden (76.6% and 52%) (Alkebach and Hagelin, 1999 and Alkebach et al 2006), the Netherlands (50.3%) (Bodnar et al, 2003), the UK (28.9%, 39.4%) (Mallin et al, 2001 and Bally et al 2003), Croatia (31%) (Sprcic D M, 2007), New Zealand (64%) (Berkman et al, 1997) and Germany (34%) (Bodnar and Gerhardt, (1999). In South Africa, Correia, Holman and Jahreskog (2012) managed to obtain a response rate rate of 53%.

Figure 1 presents the percentage of companies using derivatives according to each international survey. The results for South Africa will be presented later in the study.

Figure 1: The percentage of companies using derivatives according to each survey



Generally, companies confirming the use of derivatives outside of the USA generally reported a much higher rate of usage. The percentage of Belgian, Dutch, German, Canadian, Singaporean, Hong Kong, UK and Slovenian companies reporting the use of derivatives exceed 60%, with the highest being Hong Kong companies at 81%.

When analysing the data by size of the corporation, Bodnar et al (1995) found that 65% of large companies used derivatives; this percentage declined to 30% and 12% for medium and small companies respectively as set out in Table 1. Large companies were assumed to have a market value in excess of \$250m; medium and small companies, between \$50m and \$250M and less than \$50m respectively.

Table 1 The percentage of companies using derivatives (by company size)

	Large	Medium	Small
Alkeback et al (2006) - Sweden	89%	68%	34%
Bodnar et al (2003) – Netherlands ⁶	88%	57%	42%
Bailly et al (2003) – UK ⁴	97%	70%	40%
Sheedy, E (2002) - Hong Kong ⁵	86%	88%	68%
Sheedy, E (2002) – Singapore ⁵	91%	77%	55%
Mallin et al (2001) - UK ¹	100%	63-81%	29-66%
De Ceuster et al. (2000) - Belgium ³	40%	23%	37%
Bodnar G.M and Gerhardt G (1999) - Germany ²	75-94%	84-88%	50-55%
Alkebach and Hagelin (1999) - Sweden	86%	43%	18%
Bodnar G.M et al (1998) – USA ⁵	83%	45%	12%
Berkman et al (1997) - New Zealand ⁵	100%	70%	36%
Bodnar G.M et al (1996) – USA ⁵	59%	48%	13%
Bodnar G.M et al (1995) – USA ⁵	65%	30%	12%
Notes			
[1] Company size is based on Turnover: Measured in term of turnover: Small = BGP0-GBP90m; Medium=GBP91m-GBP1bn;Large=GBP1bn and higher			
[2] Company size is based on market value: Large >DM3,3b, Medium <DM3.3b & >DM0.66b; Small <DM0.66b			
[3] Company size is based on turnover: Small=,8.23bnBEF; Medium = 8.23bnBEF - 22.43bnBEF; Large=>22.43bn BEF			
[4] Company size is based on market value: Small = Mkt Value < GBP100m; Medium= Mkt Value between GBP100m and GBP1bn; Large =Mkt Value > GBP1bn			
[5] Company size is base on market value. Large >\$250m; Medium < \$250m and >\$5m and small <\$50m			

[6] Company size is based on turnover: Large >\$800m; Medium < \$800m and >\$250m and small <\$250m

Whilst a greater percentage of large companies reported the use of derivatives in 1998 (83%), the pattern of use between the small, medium and large companies seen in 1994 repeated itself in the 1995 and 1998 surveys. This was a trend that repeated itself in almost all subsequent studies in the UK, Europe, Australasia and Latin America (for foreign exchange derivatives); the size of the company was identified as a significant determinant of derivative use and was thought to be linked to the existence of economies of scale as well as to the greater range of risk exposures facing large companies.

The analysis of the use of derivatives by size and industry in New Zealand indicates that for large companies (equity value >\$250m) as well as smaller companies (equity value <\$50m) the use of derivatives reported by companies is 100% and 36% respectively compared to the US experience of 65% and 12% (Berkman, et al, (1997) p. 69). This result is attributed to the potentially greater currency exposure of New Zealand companies given the nature of its economy. New Zealand is a small but relatively open economy and as seen in similar economies of Belgium (De Ceuster et al, 2000), the Netherlands (Bodnar et al, 2003) and Taiwan (Pei-Gi Shu and Hsuan-Chi Chen, 2003), where local companies have greater exposure to currency price risk, the focus on the need to manage these risks takes precedence over cost effectiveness issues associated with economies of scale.

Growth in the use of derivatives by companies of all sizes over time is evident in the studies of Alkeback et al (2006), which shows that the number of derivatives users among the medium and smaller companies in Sweden increased significantly from 1996 to 2003. Medium companies who indicated the use of derivatives increased from 43% to 68% and smaller companies from 18% to 34%. This trend is also evident in the studies by Bodnar et al (1994-1998).

Sheedy (2006) found that the rate of derivatives use was similar across all company sizes; 82% of medium and 62% of small companies for Hong Kong and Singapore combined, used derivatives compared to 86% of large companies. This goes against the general trend indicated above. There is a distinct lack of large companies in the sample of Singapore and Hong Kong; being 31% and 24% respectively. This provides a partial explanation for the difference in the observed trend in derivatives use by company size between Hong Kong and Singapore and other countries reviewed. The studies by Jalivand A (1999), Pei-Gi Shu and Hsuan-Chi Chen (2003), Sprcic (2007), Junior (2007 & 2011) and Schiozer and Saito (2009) do not provide data on the use of derivatives by company size.

In the earlier survey by Bodnar et al in 1994 (published in 1995), an analysis of derivatives users by industry classification showed that 49% of commodity based companies used derivatives; between 39% and 42% of manufacturing companies used derivatives and less than 30% of transportation, retail / wholesale and services companies used derivatives. The higher percentage of companies using derivatives in the commodity sector is thought to be linked to the availability of derivative products suitable for this industry (Bodnar et al, 1995). This trend was repeated in the 1995 (published in 1996) and 1997 (published in 1998) surveys, but as seen in the feedback for 1997, the percentage of users in the Service sector increased significantly from 12% in 1994 to 42% in 1997.

In most small open economies such as Sweden, the Netherlands, New Zealand, Taiwan, Hong Kong and Singapore, manufacturing sectors are more frequent users of derivatives than their US counterparts, whereas the USA primary product sectors are more frequent users of derivatives. This is believed to be related to the nature of these economies. The economies of Sweden, the Netherlands, New Zealand, Taiwan, Hong Kong and Singapore are classified as small open economies; as such manufacturing companies in these countries who engage in high levels of international trade are exposed to a higher level of foreign exchange risk than that experienced by their US counterparts (Alkeback et al, 1999). The higher rate of derivatives use by US companies in the primary sector is related to the relative maturity of the commodities derivatives exchange in that country. The UK also shows a higher level of derivatives use in the manufacturing sector compared to their US counterparts (Mallin et al, 2001 and Bailly et al, 2003). The lower derivatives use observed in the services sector in all countries is consistent with the findings of Bodnar et al (1995, 1996 and 1998).

Table 2 sets out the percentage of companies using derivatives by type of derivative. The kinds of exposure managed were classified as foreign exchange, interest rate, commodity and equity exposures and the kinds of derivatives used were generally classified as OTC forwards, futures, swaps, OTC options and exchange traded options.

Of the companies who use derivatives, 70% or more indicated the use of derivatives to manage foreign exchange risk in all studies except Bailly et al (2003), and Pei-Gi Shu and Hsuan-Chi Chen (2003) with the latter being the only study that returned a result of less than 50%. Companies in countries whose economies are characterised as small open economies (the Netherlands, Singapore, Hong Kong and Sweden) reported a greater intensive use of derivatives to manage exchange rate

risks, with all of them reporting 90% and higher of the companies using derivatives to manage exchange rate risks. The only exception is Hong Kong with 89%.

Table 2 The percentage of companies using derivatives (by type of derivative)

	Forex	Int. Rate	Commodity.	Equity
Alkeback et al (2006) - Sweden	90.0%	47.0%	12.0%	9.0%
Bodnar et al (2003) - Netherlands	96.0%	81.0%	20.0%	Not Given
Bailly et al (2003) - UK	62.5%	31.5%	7.1%	0.6%
Pei-Gi Shu and Hsuan-Chi Chen (2003) - Taiwan	48.9%	11.5%	4.6%	Not given
Sheedy, E (2002) - Hong Kong	89.0%	77.0%	19.0%	19.0%
Sheedy, E (2002) - Singapore	92.0%	66.0%	19.0%	13.0%
Mallin et al (2001) - UK	89.0%	49.0%	9.0%	2.0%
De Ceuster et al. (2000) - Belgium	98%	85%	17%	Not given
Bodnar G.M and Gerhardt G (1999) - Germany	96%	89%	>40%	Not given
Alkebach and Hagelin (1999) - Sweden	93%	50%	12%	10%
Bodnar G.M et al (1998) - USA	83%	76%	56%	34%
Bodnar G.M et al (1996) - USA	76%	73%	37%	12%
Junior J.L.R, (2007) – Brazil				
	1996	8.24%		
	2004	29.95%		

The percentage of companies signalling the use of derivatives to manage interest rate risk range from 11.5% (Pei-Gi Shu and Hsuan-Chi Chen, 2003) to 88.8% (Bodnar and Gerhardt, 1999). There is no distinct pattern across all countries. Reasons cited for interest rate hedging by companies include the reduction of interest rate exposure and the locking in of financing rates (De Ceuster et al, 2000). A pattern of significantly lower use of derivatives to manage commodity price risk and equity risk, relative to exchange risk and interest rate risk, is consistent across all studies. The use of derivatives to manage commodity price risk is highest in the USA which is consistent with a larger primary sector and a much more developed market for these derivatives. Sprcic (2007), Jalivland (1999), Bodnar et al (1995), Berkman et al (1997), Junior, (2011) and Schiozer and Saito (2009) do not provide data on the class of derivatives used.

Whilst Jalivland (1999) and Sheedy (2002) do not report on the most favoured derivative instrument for each class of derivatives used, those studies that did report on this indicated a preference for OTC Forwards and Futures for the management of Foreign Exchange risk; whilst Swedish

companies indicated a preference for Swaps in addition to these instruments (Alkebach and Hagelin, 1999, Alkeback et al, 2006). Swaps was identified as the favoured instrument for managing interest rate risk by all companies in all countries whilst Futures and Forwards were identified in all studies as the most popular instruments for managing commodity price risk.

Table 3 The most common derivative instruments used to manage each type of risk

	Foreign Exchange	Interest Rate	Commodity	Equity
Sprcic D, M (2007) -Croatia	Forwards	Swaps	Futures,Forwards	Not given
Sprcic D, M (2007) - Slovenia	Forwards	Swaps	Futures,Forwards	Not given
Alkeback et al (2006) - Sweden	Swaps	Swaps	OTC Forwards , Swaps	Swaps
Bodnar et al (2003) - Netherlands	Forwards	Swaps	OTC Options	Not given
Bailly et al (2003) - UK	Forwards	Swaps	OTC Forwards	Not given
Pei-Gi Shu and Hsuan-Chi Chen (2003) - Taiwan	Forwards	Swaps	Futures	Not given
Mallin et al (2001) - UK	Forwards	Swaps	Futures, Swaps	Exchange Options
De Ceuster et al. (2000) - Belgium	Forwards	Swaps	Forwards	Not given
Bodnar G.M and Gerhardt G (1999) - Germany	Forwards	OTC Swaps	Forwards	Not given
Alkebach and Hagelin (1999) - Sweden	Forwards Futures,Swaps	Swaps	Futures	Futures
Berkman et al (1997) – New Zealand	Forwards	Swaps	Forwards	Not given
Junior J.L.R (2007) - Brazil	Swaps	Not given	Not given	Not given
Bodnar G.M et al (1996) – USA	Forwards	Swaps	Futures	OTC Options

Accounting disclosure and IFRS 7

Prior to the introduction of the disclosure requirements outlined in IFRS 7, a comparative study into the use of derivatives by the corporate sector was limited due to non-standard disclosure practices. Comparative studies using annual reports have been facilitated since the introduction of IFRS 7 on 1 January 2007 which has consolidated the previous disclosure requirements of IAS 32 and IAS 39. However, the financial reporting requirements set out in IFRS 7 may also impact on the decision to

use derivatives. Studies referred to in this paper indicate the effect of disclosure requirements and accounting treatment on the company's decision to use derivatives. A study undertaken out by Marsden and Prevost (2005) analysing the impact of the introduction of a new Financial Reporting Act (of 1993) requiring New Zealand companies to comply with applicable financial reporting standards, found that high growth companies were less likely to use derivatives contracts subsequent to the introduction of the new legislation. This paper does not intend perusing this avenue of research which, given the introduction of IFRS 7, may be an interesting area for future research.

The International Accounting Standards Board (IASB) issued IFRS7 during August 2005. It became effective on 1 January 2007. The revised Companies Act 71 of 2008 S29 (4) (b) requires public companies to present financial information in their annual financial statements in a manner that is consistent with the International Financial Reporting Standards of the International Accounting Standards Board. The requirements for compliance with the standards as stipulated in IFRS7 became effective as at 1st January 2009 for all companies listed on the Johannesburg Stock Exchange (JSE).

Over the last few years companies have adopted new approaches to the measurement and management of risks associated with the use of financial instruments. In the process, new risk management concepts and approaches have gained acceptance (KPMG: IFRS 7 for Corporates, December 2006). There is also growing recognition of the need to provide more transparent information to the users of financial statements on a company's exposure to risks and their approach to the management of these risks. Such information can play a significant role in the user's assessment of the financial position and performance of the entity and will assist them in their assessment of the (current / potential) risk and return profile of companies.

IFRS 7 calls for the disclosure of information on financial instruments used by the company that will enable the user of the financial statements to evaluate the nature and extent of risks arising from these financial instruments. These risks would typically include credit risk, liquidity risk and market risk. From a qualitative perspective, IFRS7 requires the financial statements to disclose for each risk, the exposure to that risk, the objectives, policies and process for managing the risk and the methods used to measure the risk. From a quantitative perspective the financial statements provides an analysis of exposure to risks as it would have been presented, or based on information

reported to senior (key) management. If any of these should change from one year to the next, these changes should be disclosed in the financial statements.

IFRS 7 excludes operational risk where this risk is not attached to the financial instruments referred to above. It also excludes disclosure requirements on commodity contracts that meet the own use exemption criteria laid down in IAS39. Changing market conditions called for greater focus on fair value measurements of the company's financial instruments and the significance of the instruments to its financial performance and position. This resulted in the issue of amendments to IFRS7 in March 2009 by the International Accounting Standards Board (IASB). These amendments focused on enhanced disclosures about fair value measurement and liquidity risk. The amendments to IFRS7 require companies to classify fair value measurements for financial instruments using a three tier fair value hierarchy which reflect the inputs used in the measurements (PWC, July 2009).

A study by Modack, Correia and Holman (2012) of the annual reports of the 100 largest South African listed on the JSE found that 93% of these companies used derivatives for hedging and risk management purposes. A survey questionnaire by Correia, Holman and Jahreskog (2012) of 98 large JSE-listed non-financial firms found that 90% of the surveyed companies employed derivatives to hedge risk exposures. The results of both the questionnaire survey and the review of annual reports are consistent and support the conclusion that large South African corporates make extensive use of derivatives. This is in line with derivative use by large companies in such economies as Sweden, the Netherlands, New Zealand, and Germany. The use of derivatives has been generally found to add value, except in the case of the hedging by commodity producers, (see Smithson & Simkins, 2005). Whilst large South African companies make extensive use of derivatives, this study will examine the use of derivatives by small listed companies listed on the Main Board of the JSE and the AltX.

The findings of the majority of the studies referred to in the literature review support the view that derivatives use is strongly correlated with the size of the company, most commonly measured in terms of turnover or market capitalisation. The chosen sample of companies in this study i.e. the smallest companies on the main board of the Johannesburg Stock Exchange (JSE) as well as the companies on AltX, represent the companies with the lowest market capitalisations. As South Africa has a relatively small but open economy, we would expect the level of imports and exports by companies to contribute to a high rate of exposure to foreign currency price risk and most companies should also be exposed to interest rate risk. Fewer companies should be exposed to

commodity price risks. As outlined in the literature review, most studies found that companies used OTC forwards to hedge foreign currency risks and interest rate swaps to hedge interest rate exposure.

Data and Methodology

The approach employed in this study was to review the use of derivatives by selected companies on the main board of the Johannesburg Stock Exchange (JSE) as well as the companies listed on the Alternative Exchange (AltX) of the JSE by reviewing their Annual Financial Statements for the periods 2008 and 2009. The initial sample of companies selected was based on a ranking of companies in terms of market capitalisation²¹. Companies within the sample selected have a market capitalisation of below R1bn and based on the benchmarks set by the Wharton studies, these companies would fall within the classification of “small” companies. In analysing the sample, cognisance was taken of movements in the market pertaining to new listings, de-listings, company suspensions and name changes. This resulted in the following effects for the sample of companies examined for this study:

- Some newly listed companies would not be included in the final sample because data for the relevant period would not be available.
- Some of the companies that were delisted could not be included in the final sample due to lack of available data.
- Some of the companies suspended may not have had data for the relevant period and were possibly suspended due to lack of compliance with JSE rules on publishing this data. The lack of availability of data for the relevant period does not apply to all suspended companies; some may have published data even if in an abridged format. Companies suspended before 2008 were not considered in the final sample.

After considering all these movements the sample of companies that were subjected to review totalled 104. It was found that 13% of the companies in the sample are classified under the Primary Sector, 30% under the Manufacturing sector and 57% under the Services sector. A complete list of the companies analysed for derivative use is set out in the Annexure to this study. A review of the financial statements was undertaken with the objective of determining which of these companies

²¹ The use of market capitalization is consistent with the Bodnar studies in the USA and this reflects the basis of determining firm size for the majority of studies (see Table 1). However, alternative indicators of size such as sales turnover and asset base could have been used in this study. Market capitalization would be affected by the varying risks of each sector although other definitions of size also have disadvantages. For example, service sector companies will tend to be less asset-intensive and the accounting for leases and the accounting for assets may also impact on this measure of size. Companies with large turnovers may reflect lower margins whilst market capitalization should be more closely aligned with levels of profitability.

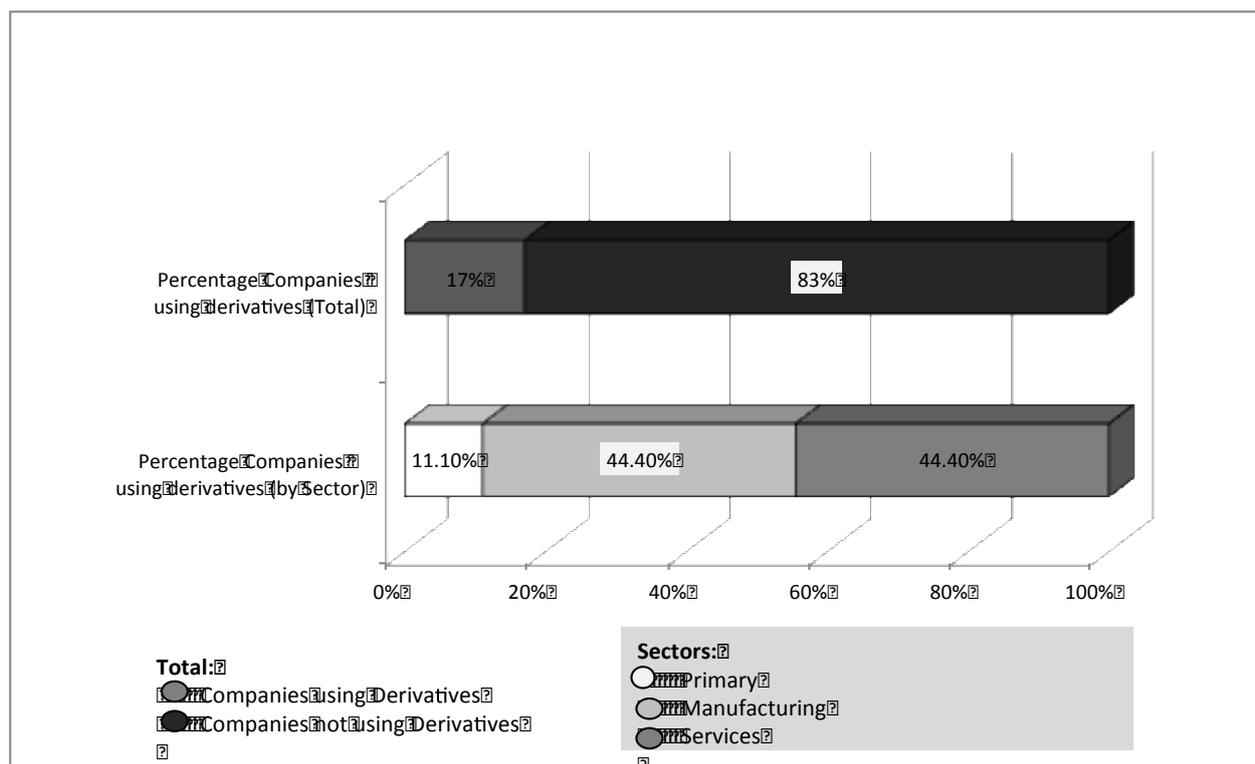
used derivatives for risk management purposes. The types of derivatives considered included Swaps, Forwards, Options and Futures. In this regard, the focus of the review is aligned with studies referred to in the literature review. The types of risks considered in the review included interest rate risk, commodity price risk, currency risk and equity risk. Similarly, this approach is aligned to the reviews referred to in the literature review. In addition to the above, the review also tried to identify the sectors in which the companies are classified. The sector classification used is in line with the approach of studies referred to in the literature review; these were classified as the Primary, Manufacturing and Services sectors. The total market capitalisation of the companies under review is R18 944m. This involved a detailed review of each company's annual financial statements to derive the information on derivative use.

Results

An analysis of the 104 companies indicated that only 17% of the companies under review reported the use of derivatives in their annual report. This is significantly lower than the percentage of derivative use by small companies reported by Bodnar et al (2003) for the Netherlands (42%), Berman et al (1997) for New Zealand (36%), Sheedy (2002) for Hong Kong (68%) and Singapore (55%), Alkeback et al (2006) for Sweden (34%), Bailly et al (2003) for the UK (40%), Mallin et al (2001) for the UK (29-66%) and De Ceuster et al. (2000) for Belgium (37%). Although the results of this study are comparable to the finding by Bodnar et al in their 1994, 1995 and 1997 surveys for the USA where between 12% and 13% of companies classified as small companies reported the use of derivatives, it is noted that the USA has a significant internal market. Also, we need to take into account the time difference between the Bodnar studies and this study. Further, commodities and import/export transactions are often stated in US Dollars.

If we exclude the USA, then the average derivative use by small companies in other economies is 43% which is significantly higher than the results of our study of derivative use by small South African firms. The relatively lower percentage of derivatives usage for this company size for South Africa may be partially due to the heavy weighting of the Services sector in the sample. As explained, derivative use within the Services sector was generally found to be lower in most of the studies reported on in the literature review.

Figure 2 The percentage of companies using derivatives and sector use



Of the companies that were identified as users of derivatives, 11.1% are within the Primary sector, and 44.4% in each of the Manufacturing and Services sector. There is an overwhelming preference among users of derivatives for the use of Forwards for the management of foreign exchange price risk. Of the companies that use derivatives, 89% use derivatives to manage foreign exchange exposure, 11% use derivatives to manage equity exposure and 5% use derivatives to manage interest rate exposure.

Table 4 The most common derivative instruments used to manage each type of risk

Derivative Instrument	Interest Rate	Foreign Exchange	Commodity	Equity
Swaps	1	0	0	0
Forwards	0	16	0	0
Options	0	1	0	2
Futures	0	0	0	0

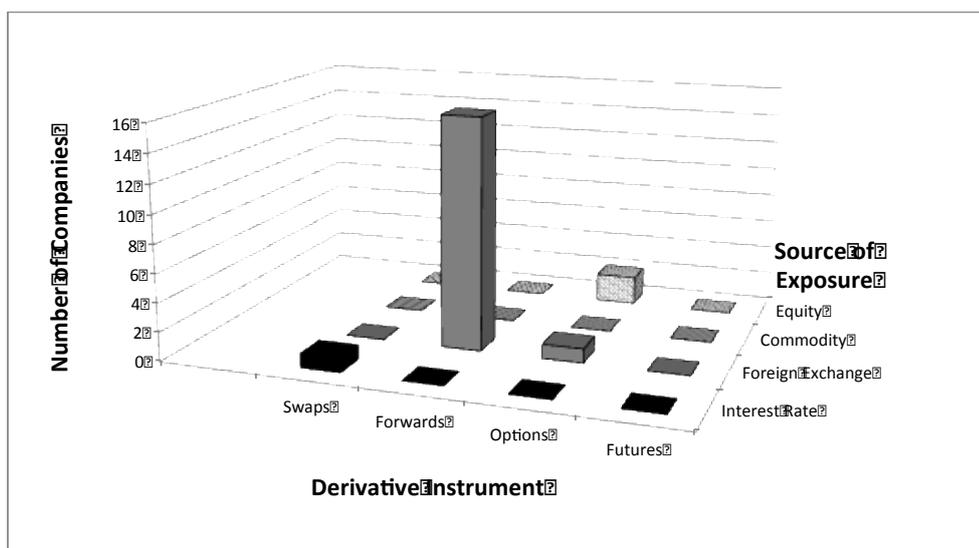
Of the 17 small companies reporting the use of derivatives, 16 of these companies use OTC forwards to manage foreign currency risks. Only one company used interest rate swaps to manage

interest rate risk. This indicates the limited use of derivatives and the limited range of such use as risk management is concentrated in the use of forwards to hedge foreign currency risks.

Of the companies engaged in the use of Forwards for the management of Foreign Exchange risk, 50% (8) are engaged in operations within the Manufacturing sector that is characterised by a degree import and export activity; 38% (6) are engaged in either Investment or Financial services of which there is a degree of off-shore activity. The high percentage demand for instruments to manage foreign exchange exposure is not surprising given the finding by Bodnar and Gerhardt (1999), Bodnar et al (2003), Berkman et al (1997), Sheedy (2002) and Alkeback et al (2006) that the nature of the economies of the countries subjected to their study, being small and open economies, was a primary driver for the demand for derivatives to manage foreign exchange exposure. However, it remains noteworthy that so few small companies use derivatives for risk management purposes particularly in relation to hedging interest rate risk. South Africa is considered to have a relatively open economy, and hence there should be a high demand for derivative instruments to manage foreign exchange exposure²².

Figure 3: Derivative use by instrument and type of risk

²² One of the surprising findings was the lack of derivatives use by **1 time Airlines** given the significant exposure to foreign exchange risk. This could also reflect a lack of capacity to obtain bank facilities which may indicate also financial pressures on the company.



The lack of demand for derivative instruments to hedge commodity price exposure could be partially attributed to the fact that companies from this sector make up only 13% of the sample. However a review of the activity of the companies in this sector shows that many of companies are engaged at the exploration end of mining activity rather than production. There is therefore no need at this early stage of the development for these companies to engage in commodity price exposure management.

The review indicated that 6% of companies using derivatives employ more than one derivative; all other companies using derivatives confine their use to one type of derivative instrument.

The study found that 89% of the sample that use derivatives have a market capitalisation lower than R200m. This is a surprising outcome since one would expect the relatively larger companies within this segment to have greater exposure and therefore a greater demand for derivatives to manage this exposure. For example, Bailly et al (2003) found that only 29% of the smallest companies used derivatives whilst 66% of the larger companies in the small company category used derivatives. The majority of companies in the sample set are exposed to interest rate and/or foreign currency risk.

The study found that 100% of companies were found to be compliant with the IFRS disclosure requirements pertaining to these risks. These disclosures include a sensitivity analysis of the impact of movements in interest and exchange rates. With only 13% of companies in the sample making up the Primary sector, the low rate of use of derivatives to manage commodity price risk is not surprising, especially considering that most of the companies in this sector are in an early exploration phase or represent attempts at re-habilitating old mines.

The use of derivatives by South Africa's small listed companies is materially less than the use of derivatives by small companies in such countries as the Netherlands, Sweden, New Zealand and Germany. The use of derivatives by the largest South African firms is extensive and comparable to derivative use by large corporates in the developed economies. The Correia, Holman and Jahreskog (2012) survey and the Modack, Holman and Correia (2012) survey indicate that over 75% of companies used OTC forwards to hedge foreign currency risks and the latter study found that 65% of firms employed interest rate swaps to hedge interest rate exposure. Large firms also made significant use of OTC options.

Further research is required to determine the reasons for the lack of derivative use by small companies in South Africa. One reason may be that South Africa's small companies are unable to obtain access to derivatives to reduce exposure to foreign currency, interest rate and commodity price exposures. Otherwise, there may be a lack of experience with the use of derivatives or a lack of knowledge or it may simply reflect the fact that small companies have less exposure to these types of risks. Whilst we would expect to see a greater use of derivatives by South Africa's large companies, the difference between 17% of small companies using derivatives as compared to the derivative use by 93% of South Africa's large companies may also reflect constraints imposed by the capital markets on the ability of small companies to effectively use derivatives for risk management purposes. This is further evidenced by the lower use of derivatives by South Africa's small companies relative to the derivative use by small companies in other developed open economies.

Conclusions

Derivative use by South Africa's small listed companies is significantly lower than the percentage of derivative use reported in other studies. International studies (apart from the USA) report that the percentage of small companies using derivatives ranges between 34% and 68%, with a mean of 43%. Further, derivative use by small listed companies is significantly less than the derivative use by South Africa's large companies. The analysis does indicate that where derivatives are used the intensity of use is greatest within the manufacturing sector of the economy.

Companies reporting the use of derivatives will do so primarily for the management of foreign currency exposure and these companies all employ OTC forwards to hedge foreign exchange rate risk. Of the companies that use derivatives, 89% use derivatives to manage foreign exchange exposure and 100% of these companies employed OTC Forwards to hedge foreign currency risk. Only one company used options to hedge foreign exchange rate risk. The study shows that only a small percentage of companies use derivatives to manage interest rate risk. Effectively, this means that only one company of the 104 companies included in the sample hedged interest rate risk. For the few companies that do use derivatives, such use is concentrated in the use of OTC forwards to hedge foreign currency risks.

South Africa's small listed companies use derivatives significantly less than small companies in other developed open economies and any use is concentrated in the use of OTC forwards. This is in contrast to derivative use by South Africa's largest companies whose use of derivatives is extensive and comparable to derivative use by large companies in other developed open economies.

It is submitted that this lack of access to derivative use may act as an impediment to the development of small listed companies in South Africa. However, further research needs to be undertaken to determine the reasons for the lack of derivative use by small listed companies in South Africa.

ANNEXURE: LIST OF COMPANIES INCLUDED IN THE STUDY

Primary Sector

Absolute Hold (Bauba Platinum)	Sacoil Holding L
African Eagle Resources Plc	South African Coal Mining Holdings Ltd
Alliance Mining	Thabex Ltd
Chrometco Limited	Ububele Holdings Limited
Diamondcorp Plc	Village Main Reef Gold Mining Company
Kimberley Consolidated Mining Ltd	White Water Resources Ltd
Randgold & Exploration	

Manufacturing Sector

Abe Construction Chemicals Limited	Consolidate Infrastructure Group
Accentuate Limited	Ellies Holdings Limited
Africa Cellular Towers Limited	Imuniti Holdings Limited
African Brick Centre Limited	IPSA Group Plc
Ag Industries Ltd	Kairos Industrial
AH-Vest Ltd	O-Line Holdings Limited
Awethu Breweries	Quantum Property Group Limited
B&W Instrumentation & Electrical Ld	Racec Group Limited
Beget Holdings Limited	Rare Holdings Limited
Beige Holdings Limited	RBA Holdings Limited
Bioscience Brand	Rolfes Technology Holdings Limited
Brikor Limited	Spanjaard Ltd
BSI Steel Limited	Stella Vista Technology
Calgro M3 Holdings	W G Wearne Limited
Chemical Specialities Limited	William Tell Holdings Limited
Poynting Holdings Limited	

Services Sector

Itime Holdings Limited	John Daniel Hold
Adaptit Holdings	MAS Plc
African Dawn Capital Limited	Merchant & Indus
Alert Steel Holdings Limited	Money Web Holdings Limited
Andulela Investment	New CPA
Ansys Limited	New Europe Property Investments Plc
Blue Financial Services Limited	Nictus Ltd
Bonatla Property	Oasis Crescent Property Fund
Cape Empowerment Ltd	Paladin Capital Limited
Capricorn Holdings Ltd	Primeserv Group
Colliers South A	PSV Holdings Limited
Command Holdings	Queensgate Hotels & Leisure Limited
Dialogue Group Holdings Limited	S A French Limited
Decillion Ltd	Santova Logistics Limited
Erbacon Investment Holdings Limited	Silverbridge Holdings Limited
Faritec Holdings	Simeka Business Group Limited
Finbond Group Limited	Skinwell Holdings Limited
Foneworx Holdings Limited	Southern Electrical Company Ltd
Foord Compass Ltd	Spescom Ltd
Gooderson Leisure Corporation Ltd	Square One Solutions
Hardware Warehouse Limited	Stratcorp Limited
Huge Group Limited	Taste Holdings Limited
Ideco Group Limited	Telemasters Holdings Limited
IFCA Technologies Limited	Top Fix Holdings Limited
Indequity Group	Total Client Services Limited
Insimbi Refractory & Alloy Sup Ltd	Vox Telecom Limited
Intertrading Ltd	Vunani Limited
Interwaste Holdings Limited	Workforce Holdings Limited
Iquad Group Limited	Zaptronix Limited
Isa Holdings Limited	Onelogix Group Limited

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WHAT BASIS OF ACCOUNTING SHOULD BE USED FOR COMPANIES IN FINANCIAL DISTRESS?

ABSTRACT

Listed South African companies in financial distress may apply for business rescue under certain circumstances. In terms of the Companies Act, No. 71 of 2008, listed companies have to apply International Financial Reporting Standards (IFRS) when preparing their financial statements. However, an application of the definition of 'financial distress' stands in contrast to the IFRS 'going concern' assumption that is applied when preparing financial statements in accordance with IFRS in South Africa.

This study investigated the financial reporting requirements of companies under similar rescue regimes in the United States of America, Canada, the United Kingdom and Australia. The study found that due to the application of law and regulation, companies in Canada, the United Kingdom and Australia were obligated to prepare financial statements using IFRS even if the company was not a going concern. However, the United States Generally Accepted Accounting Principles allow a 'bankruptcy accounting' basis of accounting for companies in financial distress under certain circumstances. It is suggested that South African guidelines be developed for a bankruptcy accounting basis of accounting. It is proposed that the bankruptcy accounting basis of accounting be used as a point of departure to develop a guide for listed South African companies in financial distress that have a reporting date during the business rescue period.

KEYWORDS: financial distress, business rescue, going concern, liquidation accounting, financial reporting, IFRS, US GAAP, bankruptcy accounting